

**FIRE PROTECTION
REQUIREMENTS FOR HAZARDOUS
MATERIAL AND USED WASTE
ABSORBING MATERIAL STORAGE**

**Manual
Document
Page
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TABLE OF CONTENTS

1.0	PURPOSE AND SCOPE	2
2.0	IMPLEMENTATION	2
3.0	STANDARD	2
3.1	For Used Waste Absorbent Materials.....	2
3.2	For Hazardous Material Storage.....	2
3.3	Design Criteria and Design Requirements	3
3.4	Operational Requirements.....	3
3.5	Operational Limitations.....	3
3.6	Operations Personnel Training.....	3
3.7	Standards for Hazardous Materials Storage Facilities	4
3.8	Special Guidance Information	5
4.0	DEFINITIONS	6
5.0	SOURCES.....	6
5.1	Requirements	6
5.2	References.....	6

TABLE OF FIGURES

Figure 1.	Determining Requirements.	7
Figure 2.	Determining Hazards Requirements.	8
Figure 3.	Material Type Breakdown.....	9
Figure 4.	Facility Characterization.	10
Figure 5.	Facility Characterization.	11
Figure 6.	Facility Characterization.	12
Figure 7.	Facility Characterization.	13
Figure 8.	Ignitable Materials.	14
Figure 9.	Reactive Materials.....	15
Figure 10.	Radioactive and Other Materials.....	16

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE****1.0 PURPOSE AND SCOPE**

(5.1.1, 5.1.2, 5.1.3.a, 5.1.3.b, 5.1.3.c)

This standard applies to all Tank Operations Contractor (TOC) managed facilities, operations, and activities in which the disposal of rags and similar absorbent materials, or the storage of hazardous materials takes place. It applies to all used waste absorbent materials containing flammable or combustible liquids (including aerosols), pyrophoric metal fines, or oxidizers.

It also applies to the design and operation of TOC managed facilities used for the storage of hazardous material including flammable and combustible liquids, gases, corrosives, ignitables, reactive waste, oxidizers, water reactives, and radioactive materials (see [Section 3.8](#), Special Guidance Information for Figures 1 through 10, which present the principle logic used by the TOC fire protection engineer to determine the criteria and requirements for fire protection in hazardous material storage facilities).

2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

3.0 STANDARD**3.1 For Used Waste Absorbent Materials**

1. Waste generators will ensure that used waste absorbent materials are not stored in operating or waste generating facilities, except as permitted below.
2. Storage in “approved or listed” “Oily Waste Cans” is permitted for no more than one day.
3. A fire rated cabinet or room, used solely for this purpose, may be used to provide longer periods of storage (for more than one day).

3.2 For Hazardous Material Storage

This section provides design criteria, design requirements, and operational requirements for hazardous materials storage facilities. They apply to the design of facilities and operations for the storage of hazardous materials, including both product and waste in the following categories:

1. Ignitables (wastes in this category are regulated by WAC-173-303).
 - Oxidizers
 - Flammable Solids
 - Pyrophorics
 - Flammable Gases
 - Organic Peroxides
 - Flammable/Combustible Liquids (Classes IA, IB, IC, & II).
2. Reactives (wastes in this category are regulated by WAC-173-303).
 - Water Reactives
 - Unstable Materials.
3. Radioactive Materials.

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE**

4. Other Health Hazards.
 - Carcinogens
 - Corrosives
 - Toxics
 - Highly Toxics
 - Sensitizers
 - Other Materials.

3.3 Design Criteria and Design Requirements

Design criteria and requirements shall be interpreted and applied by the Hanford Fire Marshal's Office. The criteria and requirements are graded according to the risks or hazards involved. The higher the risk or hazard, the more restrictive the application of the criteria and requirements.

NOTE: The TOC fire protection engineer(s) are considered deputies of the Hanford Fire Marshal.

1. The criteria and requirements are presented in flow sheet format in Attachment A for each storage situation. These flow sheets are guidance for determining the applicable criteria and requirements. Paragraph 6.0 also provides additional guidance to the flow sheets.
2. All criteria and requirements for each mode are applicable and cannot be dismissed.

3.4 Operational Requirements

1. Base Operations is responsible for complying with the requirements and limitations identified.
2. Base Operations authors, revises, or modifies operational procedures, as required, ensuring that compliance is maintained with identified criteria and requirements.

3.5 Operational Limitations

1. Operational limits (limitations) are the result of the choice of the design criteria and design requirements. Application of the less stringent criteria and requirements will mandate more control of storage practices.
2. The hazardous materials storage facilities are for storage only; dispensing of materials in storage facilities is prohibited.

3.6 Operations Personnel Training

Operations personnel involved in the handling of hazardous materials shall receive training in handling the materials safely.

3.7 Standards for Hazardous Materials Storage Facilities

1. GENERAL (applicable to ALL storage facilities).
 - Construction is in accordance with the Uniform Building Code (UBC)
 - All indoor facilities shall be non-combustible, fire resistant, or fire rated construction in accordance with the UBC
 - Separation distances between storage facilities and surrounding structures shall be per the UBC
 - Non-combustible floor or deck
 - Spill and drainage control and secondary containment
 - Hanford Fire Department access and fire lanes in accordance with National Fire Protection Association Standard 1 (NFPA 1)
 - Hazard identification and NO SMOKING signs
 - Portable fire extinguishers per NFPA 10
 - Electrical installations in accordance with NFPA 70.
2. GRADED (applied to specific facilities on a graded approach when the hazards evaluation indicates the risk/hazard as moderate).
 - An automatic fire extinguishing system installed in accordance with NFPA 13
 - A fire alarm system in accordance with NFPA 72 and NFPA 1221 reporting to the Hanford Fire Department via a radio fire alarm reporter (RFAR)
 - Building fire alarms for personnel notification
 - Building exhaust ventilation per the Uniform Fire Code
 - Explosion control per the applicable referenced standards
 - A minimum of two fire hydrants located so the distance from the hydrants to the facility does not exceed 300 feet.
3. MANDATORY (applied when one or more of the criteria below is true). All the requirements in subsections 1 and 2 above become mandatory when:
 - The facility or the storage area of the facility is greater than 400 square feet
 - Maximum possible fire loss is greater than \$1 million
 - The hazards evaluation indicates that the risk/hazard is HIGH and the additional protection is warranted.

4. Material Storage and Segregation Requirements (applicable to ALL modes of storage).
 - Hazardous material storage shall be separated from personnel areas in accordance with the UBC
 - Hazardous materials shall be in containers that comply with the applicable standards. Only solid, bulk materials would be exempt from this if there is no immediate hazard
 - Hazardous materials that can cause environmental damage shall be located and protected to mitigate unacceptable environmental consequences
 - Incompatible materials stored indoors shall be separated by the required construction per the UBC
 - Incompatible materials stored outdoors shall be separated from each other per the applicable code requirements. Contact the Hanford Fire Marshal for identification of the applicable code requirements.
5. Combustible Materials Accumulation Prohibited.
 - Accumulation of combustibles (cartons, papers, packaging materials, pallets, etc.) is prohibited within 30 feet of hazardous materials storage facilities
 - Weeds and other vegetation are not permitted within 30 feet of hazardous materials storage facilities.

3.8 Special Guidance Information

Figures 1 through 10 present the principle logic that will be used by the TOC fire protection engineer in determining the criteria and requirements for fire protection in hazardous material storage facilities.

1. Identification of Need.

The need to store hazardous material will be identified by the responsible facility or operations organization to the fire protection engineer. This need will be made known as early as possible in the design process to allow fire protection requirements to be effectively integrated into the overall storage facility design.

2. Requirements Determination.

The fire protection engineer will perform the review of the needed storage facility using the flowcharts in Attachment A as the guide. Key factors examined will include the following:

- Quantity to be stored (Is it less than or greater than the exempt amounts?)
- Size of the storage area (Is it over 400 square feet in size.)
- Is the material product or waste?
- Material characteristics (such as toxicity).

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE****3. Application of Graded Approach.**

Based on the process identified in the flowcharts and the hazard evaluation process, the fire protection engineer will determine the specific design requirements, including operational limitations. The fire protection engineer is the authority for the decision on these requirements.

4. Design Requirements.

The fire protection requirements determined using this procedural process will be communicated to the responsible facility organization and incorporated into the design and operational requirements in accordance with established engineering and operating procedures.

4.0 DEFINITIONS

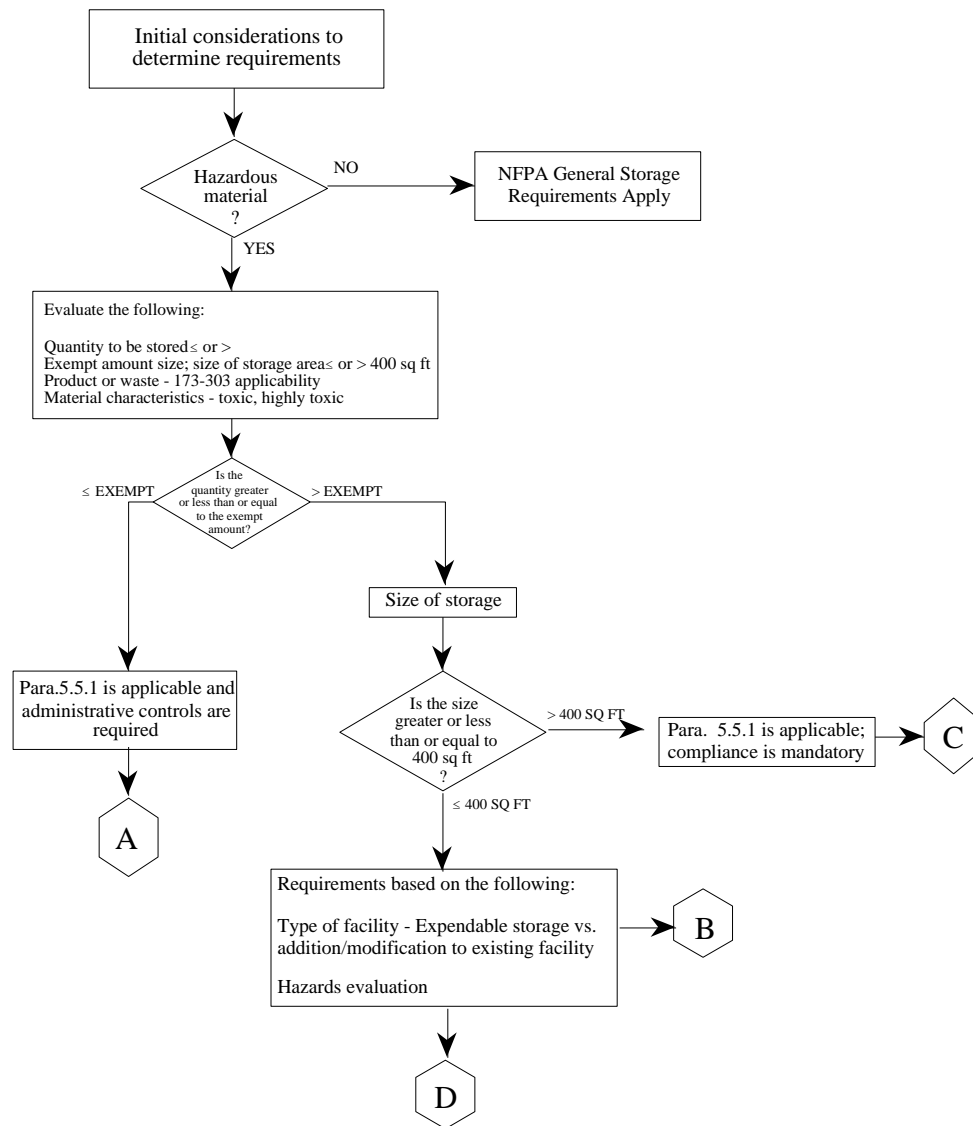
No terms or phrases unique to this standard are used.

5.0 SOURCES**5.1 Requirements**

1. DOE O 420.1B, "Facility Safety."
2. ORP M 420.1-1 R1, "ORP Fire Protection Program."
3. WAC 173-303.
 - a. Section 395(1).
 - b. Section 630(8) and (8)(a).
 - c. Section 630(8)(b).

5.2 References

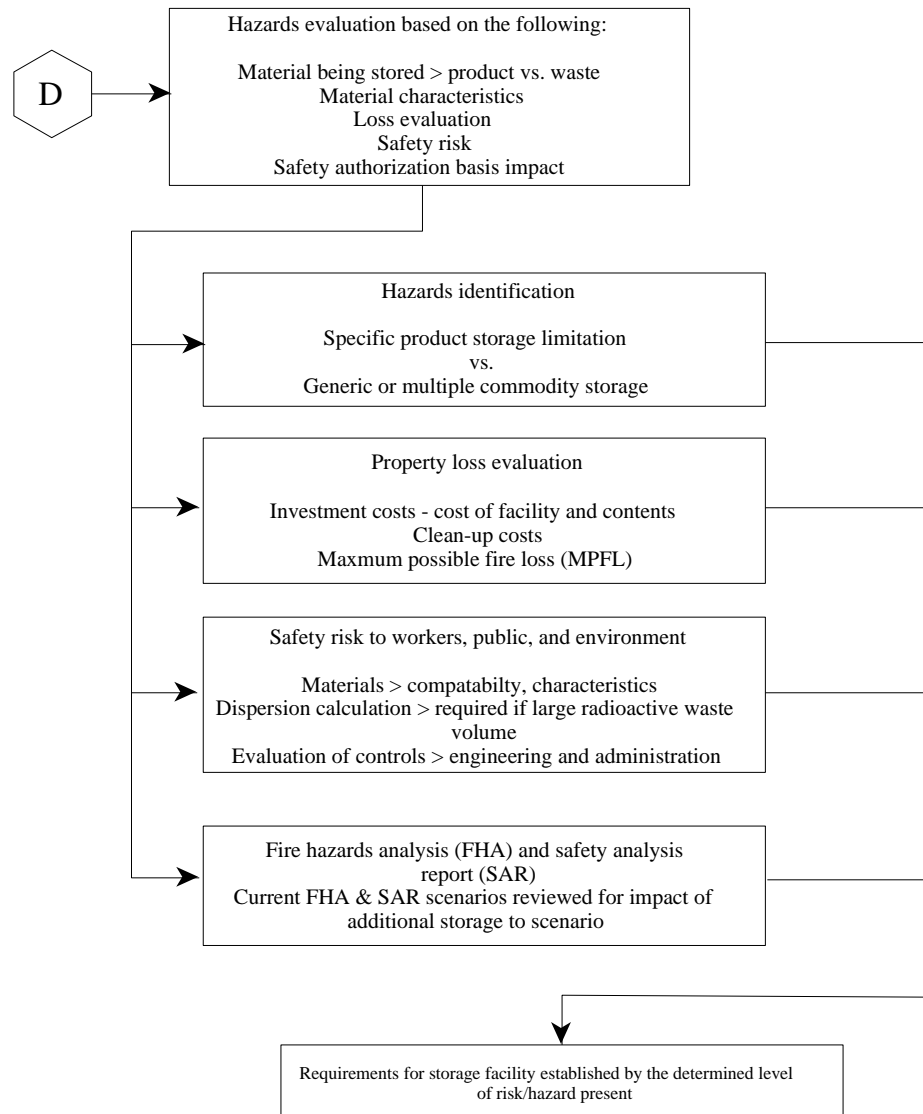
1. NFPA 1, "Uniform Fire Code tm"
2. NFPA 10, "Portable Fire Extinguishers."
3. NFPA 70, "National Electrical Code®."
4. NFPA 72, "National Fire Alarm Code®."
5. NFPA 1221, "Standard for the Installation, Maintenance, and Use of Emergency Services Communication Systems."
6. Uniform Building Code.

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE****Figure 1. Determining Requirements.**

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE**

Effective Date

February 27, 2009

Figure 2. Determining Hazards Requirements.

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
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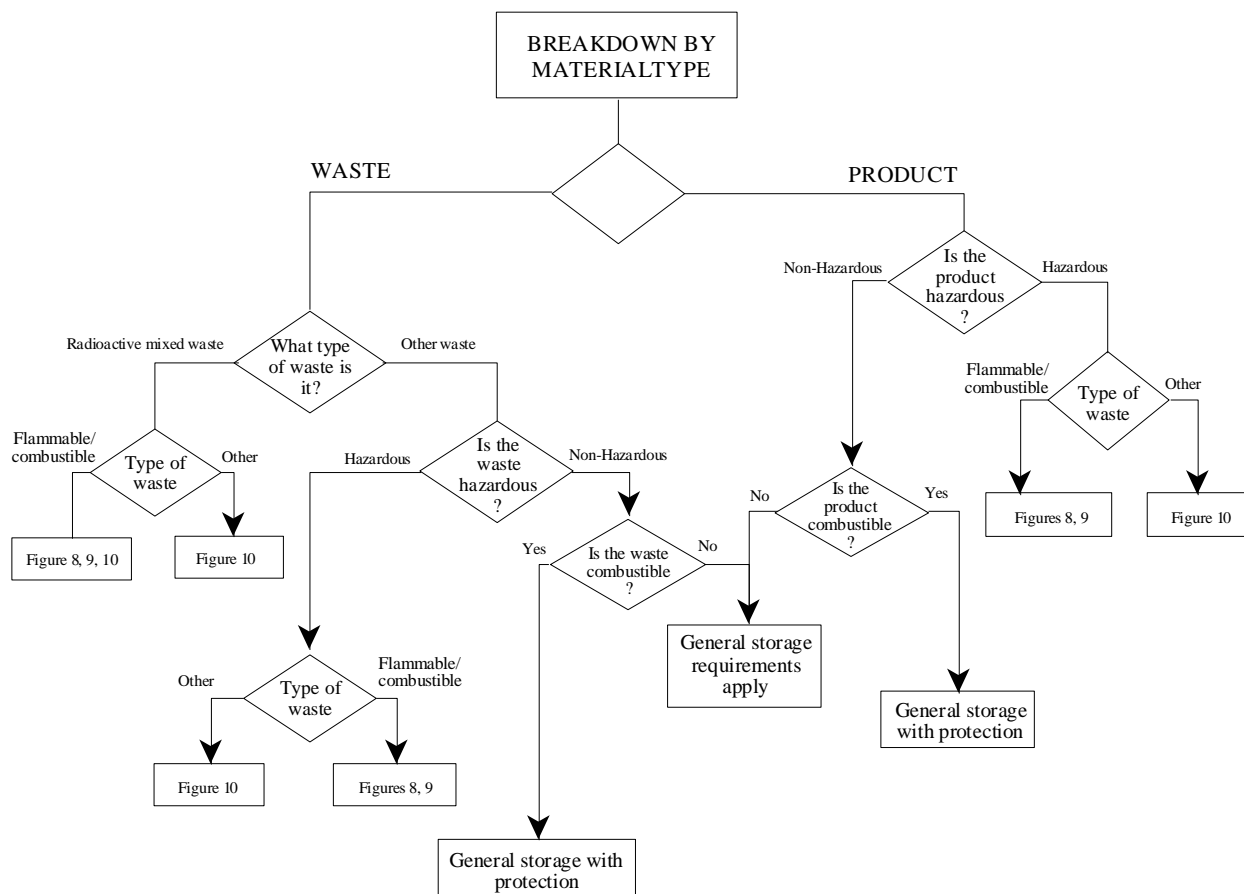
Figure 3. Material Type Breakdown.

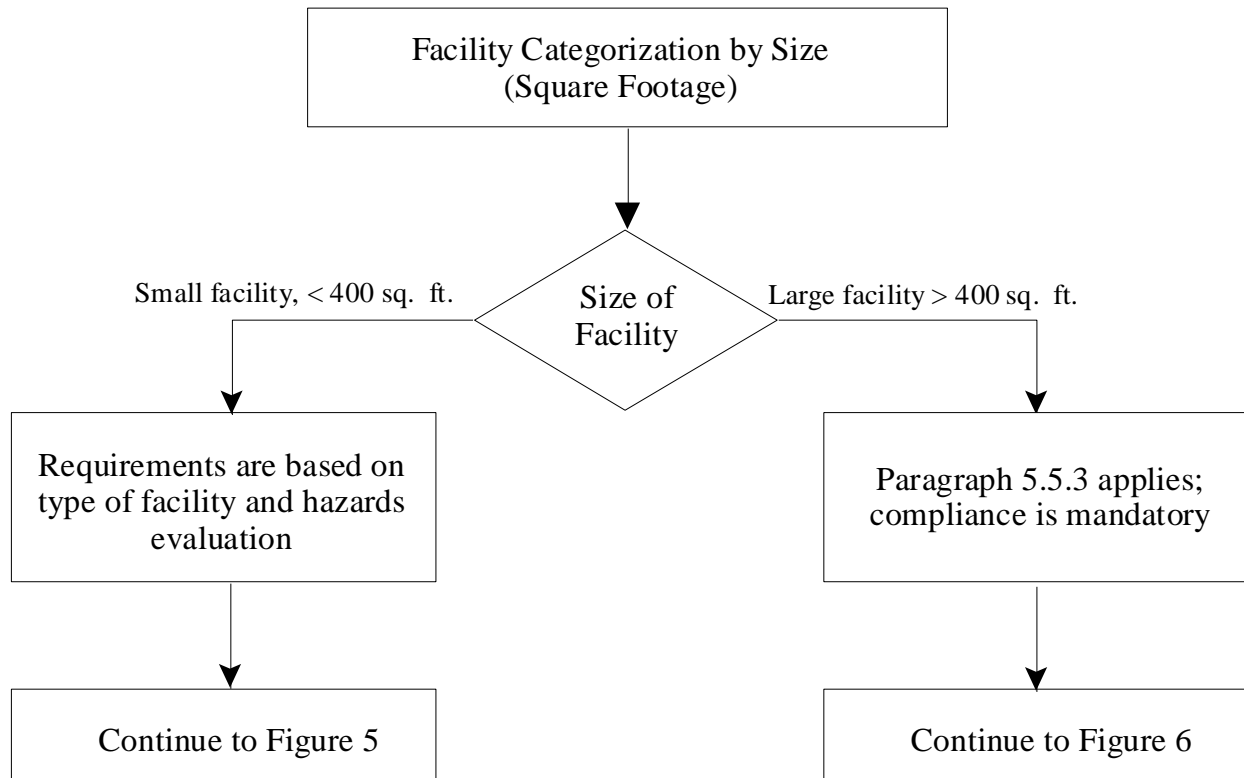
Figure 4. Facility Characterization.

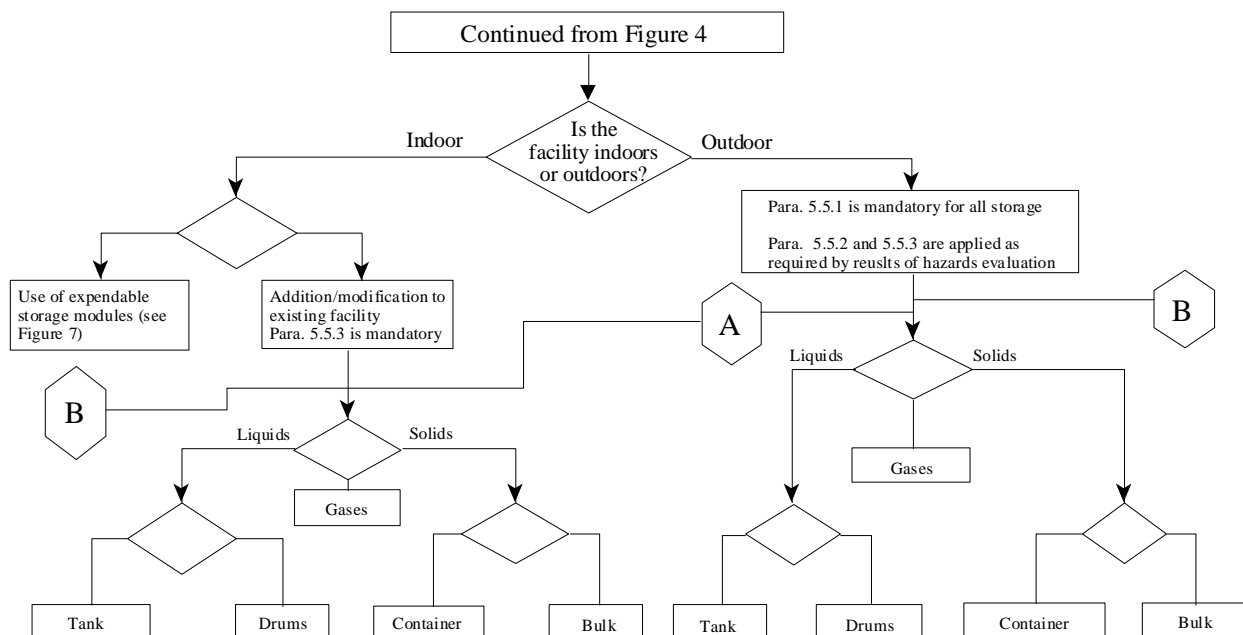
Figure 5. Facility Characterization.

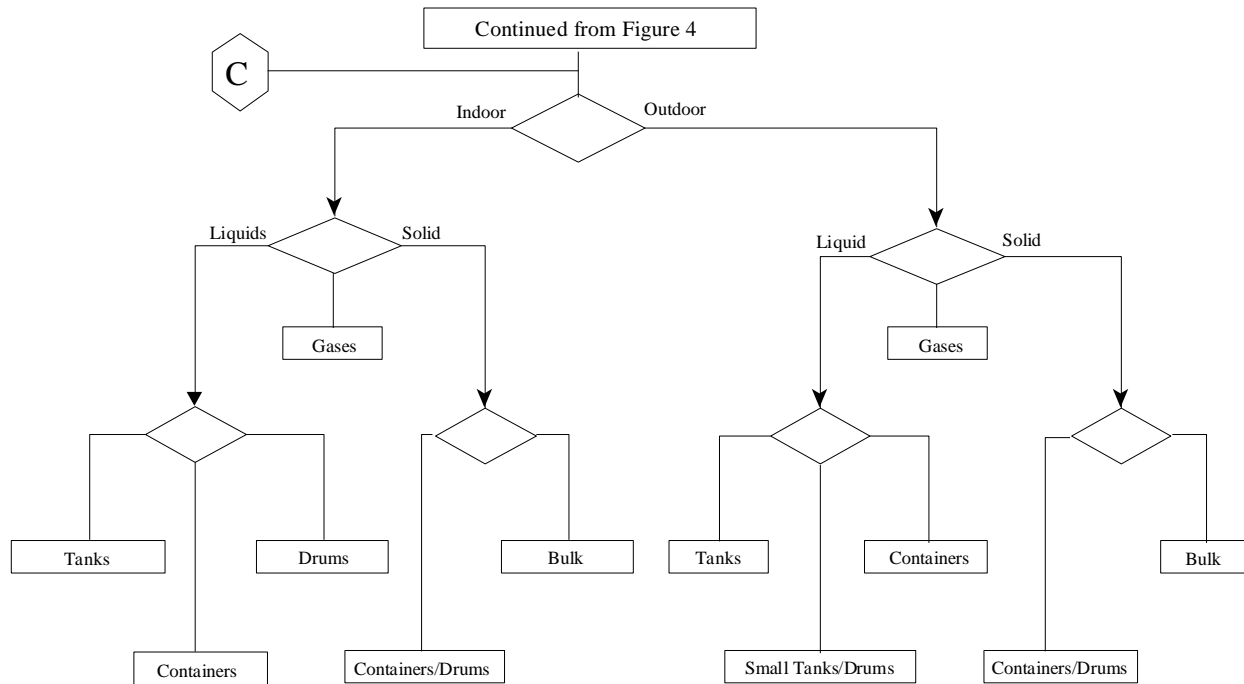
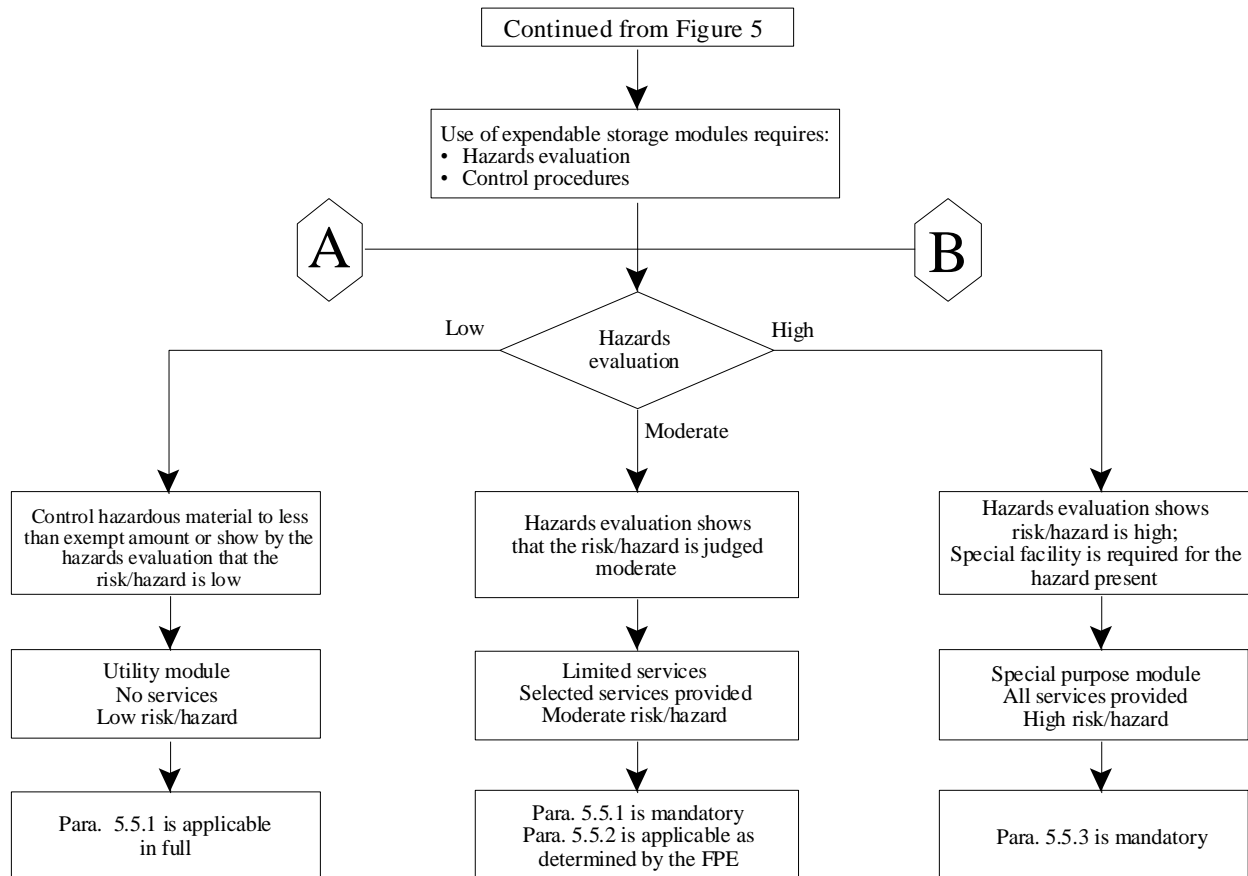
Figure 6. Facility Characterization.

Figure 7. Facility Characterization.

**FIRE PROTECTION REQUIREMENTS
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MATERIAL STORAGE**

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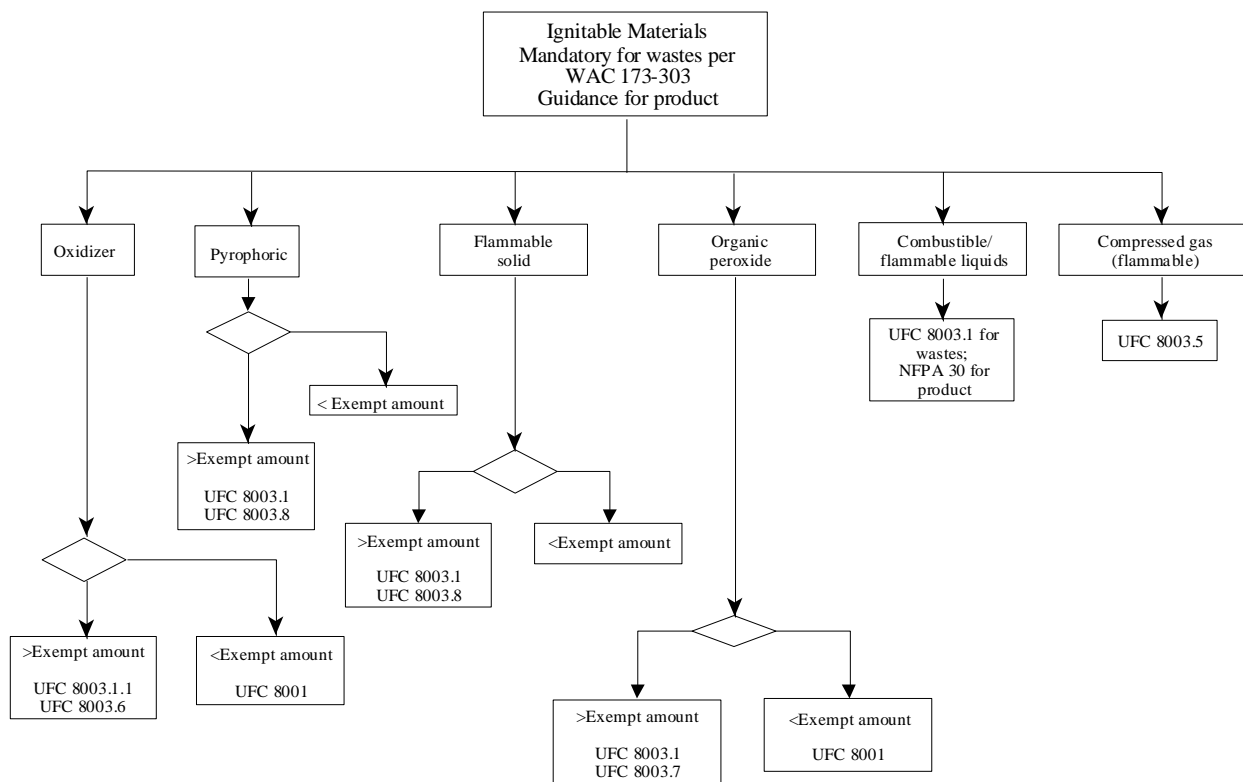
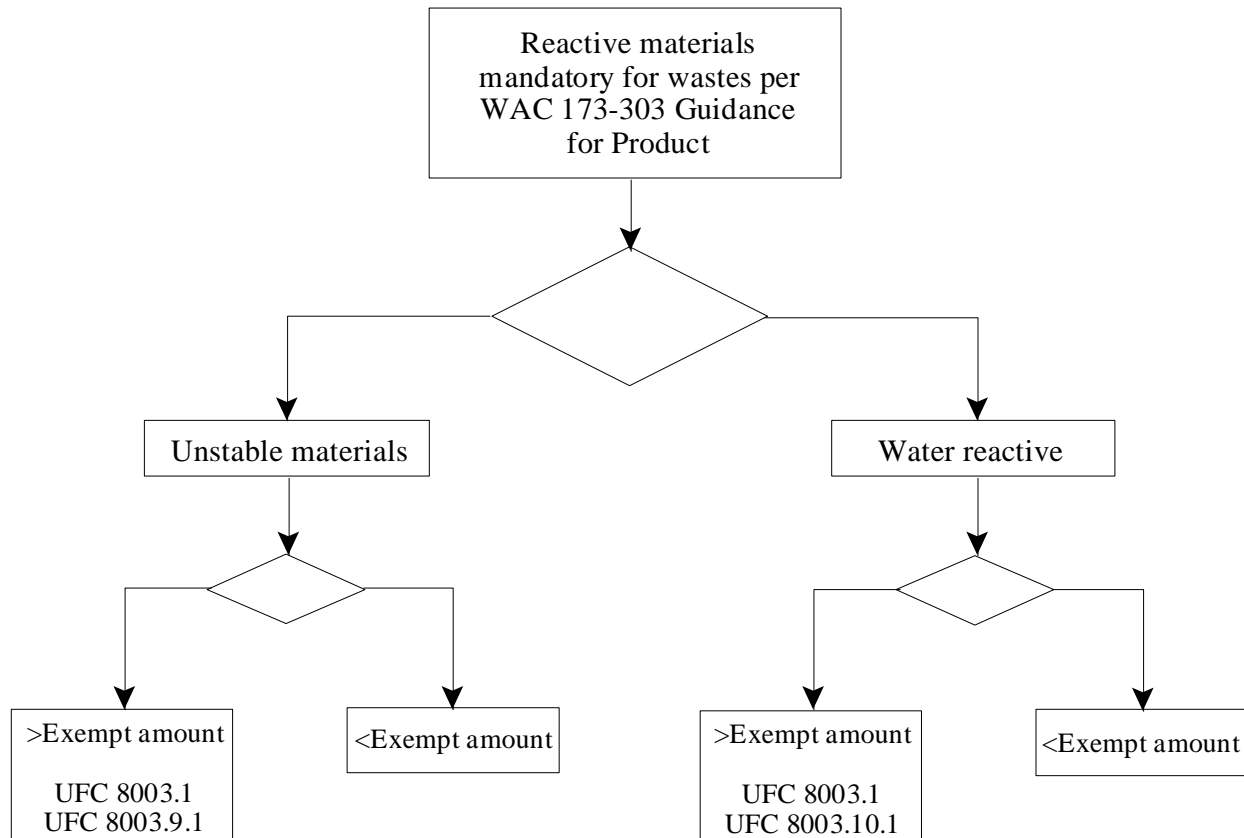
Figure 8. Ignitable Materials.

Figure 9. Reactive Materials.

**FIRE PROTECTION REQUIREMENTS
FOR HAZARDOUS MATERIAL AND
USED WASTE ABSORBING
MATERIAL STORAGE**

Figure 10. Radioactive and Other Materials.

